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## GEOGRAPHICAL NOTES.

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THE INTERNATIONAL GEOGRAPHICAL CONGRESS.—The International Geographical Congress met in Paris on the 5th of August, and closed its sittings on the evening of the 10th with a banquet. The opening address was made by M. de Lesseps, President of the Paris Geographical Society, and the different Sections then entered upon their work, which is fully reported, in the order of the classification adopted, by *La Géographie*.

In the Mathematical Section a communication was received from M. Lallemant, mining engineer, on the subject of a zero for altitudes in Europe. He showed that, according to the results of the new survey of France, the difference of level between the Mediterranean and the Ocean was but from 1 to 2 decimetres (.3281 to .6562 of a foot) instead of 1 metre (3.2809 feet) as previously supposed; and he thought it would be well to establish a mean level for each country before deciding upon a fundamental horizon. M. Lallemant dwelt also on the necessity of correcting the surveys operated in mountainous regions by taking into account the influence of the variations in gravity. M. Defforges pursued the subject with a detailed criticism of the methods and the instruments employed during the past century, and on his motion the Section adopted a programme of observations to be applied to the determination of variations in gravity resulting from elevation.

There were discussions on the observation of ocean currents and especially those of the North Atlantic, the advantages of the decimal division of time, and the proposition of Father Tondini, delegate of the Bolognese Academy of Sciences, for the adoption of the meridian of Jerusalem as the initial meridian for longitudes, as well as for the universal hour. This proposition, with which Father Tondini's name has long been identified, has received the support of many competent authorities, among others, of Dr. Supan. One argument in its favor is, that, Jerusalem being for Christians and Mohammedans as well as for Jews a holy city, the selection of that meridian would recommend itself to all mankind; unless, indeed, it were thought proper to include among men the inhabitants of Eastern Asia and some other parts.

It must be admitted that the choice of Jerusalem would put an end to national rivalry for the possession of the prime meridian, and France, at least, would find some compensation for giving up her own preference in the establishment, delicately suggested by the President of the Bolognese Academy, of an observatory on the "anti-meridian of Jerusalem" in Tahanea, one of the islands in the French Archipelago of Tuamotu. On the final question there were twelve votes for, and twelve votes against, Father Tondini's proposition, and this result probably settles the matter.

An ideally perfect meridian were an excellent thing, if it could be had, but most persons will agree with General Kaulbars that, while one meridian is intrinsically as good as another, that of Greenwich is to be preferred. Months, like meridians, are part of the machinery of

life, and it does not seem to distress the logical mind of Father Tondini that he is obliged to designate the tenth month of the year by the name of October.

In the Section of Physical Geography the Japanese delegate, Mr. Wada, read a paper on the organization of seismological research in Japan, M. de Saussure gave a sketch of what Switzerland was doing in the same line, and Baron von Schwerin presented a report on his explorations of the country at the mouth of the Congo and on the western coast of Africa. Through the whole extent of this region the sea is retreating and the land is rising; the rains are less and less frequent and the soil dries up and contracts, and there ensues a sinking in of the continental mass upon itself along the coast.

M. Turquan presented to the Section of Economical and Statistical Geography a work on the immigration of foreigners into France and the emigration of Frenchmen to foreign countries. Other works presented were: one by General Kaulbars on geographical achievement in Russia, and one on emigration by M. Metzger. With regard to the destruction of forests, the Section, speaking for the Congress, unanimously voted a resolution that shows a lack of faith in the unassisted efforts of kindly Nature. "The Congress, considering that the disappearance of woods from the surface of the soil produces and will produce consequences the most disastrous from every point of view, physical, economical and meteorological, expresses the hope that the nations, which still have the good fortune to possess the forest growth that protects the soil, will make every effort to preserve it, and that the others, whose forests are

already endangered, will take the most active and efficacious measures for their re-establishment."

The Section expressed also its interest in the aims and objects of the International Marine Conference at Washington, as well as its desire to see the works for the canalization of the Seine pushed to completion, so as to permit vessels drawing 19 to 20 feet of water to ascend the river to Paris.

In the Section of Historical Geography memoirs were received from M. du Paty de Clam on the ethnography and geography of the Gulf of Gabes, and from M. Marcel on Ottavio Pisani. M. Marcel gave also some information concerning a manuscript globe, attributed to Schöner, and now in the National Library. Father Brucker read a paper on the maps constructed by the Jesuits in China. M. Castonnet des Fosses gave a history of the commerce of Nantes with Spain, Flanders and Bremen, and sketched the relations of the Chinese Empire with the Greeks and Romans.

Abbate Pasha, President of the Khedivial Geographical Society, presented his views on the position occupied by the Negroes (the *Kush* of the inscriptions) among the Egyptians of the Pharaonic epoch. He called attention also to a remarkable paper on the Egyptian *stadium* by Mahmud-Bey, and to the fact that recent explorations had revealed numerous traces of vineyards in Egypt; and he believed that the culture of the vine in that country had been suddenly interrupted by the Mohammedan conquest.

M. Ludovic Drapeyron gave an account of the first national Atlas of France, dated in 1592; and M. Rouire spoke on the site of Lake Tritonis.

Baron von Schwerin read for the author, Mr. Dahlgren, a paper on the voyages of the Brothers Zeno. The Swedish author regards the Zeno map as a compilation of earlier maps and charts. M. Pector spoke on the historians who have mentioned Nicaragua, and M. Pawinski read a memoir on the scientific method applied to historical geography, illustrated by his own work on Poland. M. Eeckman presented M. Caron's memoir on the Roman mines in Tunisia and their utilization by the French. Colonel Coello, Honorary President of the Madrid Geographical Society, described very fully the Roman roads of Spain. The last act of the Section was to approve M. Jackson's proposition that "a biographical dictionary of travellers be prepared in each country." Beyond this approval the Congress could not go; and the task of setting each nation to work upon its dictionary naturally falls to M. Jackson.

The Didactic Section recommended the introduction of ethnography into the higher course, and the creation of special professorships of geography.

The Section of Voyages and Explorations unanimously declared "that the explorer in a new country has no right to bestow names unless there are no native inhabitants." This declaration should command the assent and the support of every enlightened geographer.

Communications were made by M. Masqueray, on the Tuaregs; by Count Cavalcanti, on the Paramanema River, on the cannibals of Brazil, and on the tribes of the Xingú; by Mr. Timmerman, on the Sunda Islands, and by Dr. Kan on the Moluccas; by M. Leclercq, on the monuments of Samarkand; by M. Sarrea Prado, on

the roads in the Portuguese colonies; and by M. Gauthiot, on the labors of the French expedition in Upper Laos. Colonel Coello announced that there would be held in Spain in 1892 a Spanish-American Exhibition. Mr. Cordeiro, of the Lisbon Geographical Society, presented a collection of maps and charts destined for the library of the Paris Society.

In the Anthropological and Ethnographical Section, Dr. Riedel read a paper on the natives of Rotti, in Netherlands-India. Dr. Hamy made a report on explorations undertaken by himself and M. de la Croix in southern Tunisia, and M. Charles Rabot described his observations among the Lapps and Fins of Russia. General Venukoff presented an important work on the Kirghiz, by General Grodekoff, and Dr. Maurel spoke on the origin of the Cambodian peoples. M. Capus described the country and the manners of the little-known Kafirs, of Central Asia, their language and their relation to the other ethnic elements of Asia. Prof. Waldemar Schmidt called the attention of the Section to the very full anthropological gallery in the Danish department at the Exposition. This gallery represented, he said, the present state of our knowledge with regard to the prehistoric age in Denmark.

At the general sessions of the Congress, held from time to time, there were many interesting papers read and addresses made. Mr. Lessar, Russian Consul at Liverpool, treated the subject of the changes in the bed of the Amu-Daria. M. Martel reported his observations in the exploration of the subterranean water-courses in the region of Les Causses. The ice-grottoes of the Jura were described by M. Ch. Faure, and those

of the Crimea by Mr. Grigorieff. Mr. Waldemar Schmidt summarized the experiences of Mr. Nansen in his perilous journey across Greenland, and Dr. Hamy read and commented upon a paper by Mr. Carl Lumholtz, the delegate from Norway, on the present and the future of Queensland. M. J. Borelli, recently returned from Abyssinia, gave an account of his travels in the Galla country. In reply to a question put by M. Savorgnan de Brazza, M. Borelli expressed the opinion that, while the Abyssinians were unable to make conquests beyond their own limits, they were strong enough to resist a Mohammedan invasion. Mr. Maurice Déchy, delegate of the Buda-Pest Geographical Society, read a paper on the central chain of the Caucasus. The southern slopes of the range, he said, were steeper than the northern, at least, in the central chain; but those of his hearers, who were acquainted with the ground, did not seem to agree with him, and M. Venukoff thought it better to avoid generalization on the subject. At the closing session on the 10th of August, Mr. Von Höhnelt entertained the Congress with the story of his journey to Mt. Kilimanjaro.

It is to be hoped that the precedent of delay in the publication of the full Report of Proceedings, established by previous International Congresses, will not be followed in the case of the one just held. The Antwerp Congress of 1871 issued the closing volume of its Report in 1872; but the Paris Congress of 1875 delayed its final volume until 1880, and it was not till 1884 that the publication of the proceedings at the Third International Congress, held at Venice in 1881, was completed.



THE TELEGRAPH CABLES OF THE WORLD.—Dr. A. Supan shows, in *Petermanns Mitteilungen*, *Band 35, IX*, the successive development of the telegraph-cable system from 1851 to 1888:

	Government Lines. Length in Nautical Miles.	Private Companies.	Total.
1851-1868	1330	14500	15830
1869-1878	2400	52922	55322
1879-1888	6754	47094	53848
1851-1888	10484	114516	125000
In English miles,	12085.25	132006.37	144191.62

Except in the Persian Gulf, most of the cables laid before 1869 have been lost, and the actual length of working lines in the world is 113,038 nautical=130,302.63 English miles. Of these 11,626 nautical miles are under Government administration (France possessing 3,197), and 101,412 nautical miles are in the hands of private companies, the most important being the Eastern Telegraph Company, with 18,838 miles, the Eastern Extension Australasian and China Telegraph Company with 12,035 miles, and the Anglo-American Telegraph Company with 10,438 miles.

MT. ST. ELIAS.—On pages 433-434 of the *Proceedings* of the Royal Geographical Society, for July, 1889, is a note from Mr. H. W. Seton-Karr, who attached himself to the Schwatka expedition to Alaska in 1886. Mr. Seton-Karr writes that when he returned to San Francisco from Alaska he was informed by the newspaper editors that any statement questioning the claim of the United States to Mount St. Elias would inflict an injury upon their reputation, and that he was, therefore, compelled to say nothing about it. He did well to keep

silence, for there is not a more fearful wild-fowl than your San Francisco editor, when he catches sight of a Briton making off with Mount St. Elias. The traveller survived to reach

The land where, girt with friends or foes,  
A man may speak the thing he will ;

and devoted, as he must be, to the cause of truth even more than to the acquisition of mountains, he cannot but have read with pleasure, in the *Proceedings* for October, the following correction of several misstatements that slipped in among the things he willed to speak at a distance from San Francisco :

SUB-OFFICE, U. S. COAST AND GEODETIC SURVEY,  
SAN FRANCISCO, CALIFORNIA,

August 6, 1889.

DEAR SIR : I beg to call your attention to the remarks of Mr. H. W. Seton-Karr upon the geographical position of Mount St. Elias, Alaska, on pp. 433, 434, of vol. xi. No. 7, New Monthly Series of the "Proceedings of the Royal Geographical Society," July, 1889.

As my name has been brought into the matter by Mr. Seton-Karr, I quote a part of his remarks :

"In 1874 the U. S. Coast Survey observed a series of vertical angles from Yakutat, about sixty miles distant, on Mount St. Elias. Their triangulation fixed the position of the mountain as lat.  $60^{\circ} 22' 06''$ , and long.  $140^{\circ} 54' 00''$ , or within six minutes of the boundary. This position was incorporated in Professor Davidson's 'Coast Pilot of Alaska,' he being the head of the Coast and Geodetic Survey. As I believe these were the only observations taken, and as there have been no later ones, it requires to be explained why the position of St. Elias was subsequently shifted. In the next edition of this volume, which is called 'The Pacific Coast Pilot,' and bears the date 1883, Mount St. Elias is forced to make a fresh jump, and this time clear over the boundary. This new position, for which no reasons are given, is lat.  $60^{\circ} 20' 45''$  N., and long.  $141^{\circ} 00' 12''$ , or just 12 seconds over the line, and—needless to say—on the American side."

This extract contains several misstatements. I remark :

The title of the "Coast Pilot of Alaska," which I wrote in 1867-69, and of which I gave Mr. Seton-Karr a copy, is "United States Coast Survey, Benjamin Pierce, Superintendent. Pacific Coast. Coast Pilot of Alaska (first part) from Southern Boundary to Cook's Inlet. By George Davidson, Assistant Coast Survey, 1869. Washington, Government Printing office, 1869." This title shows : 1st, that the

work was published in 1869; 2d, that I was not the head of the Coast and Geodetic Survey; 3d, upon consulting the new edition, you will see that I am not the author of the latter.

An examination of my work of 1869 establishes the fact that on p. 62 I gave the geographical position of the mountain as "lat.  $60^{\circ} 22' 6''$ , and long.  $140^{\circ} 54''$ ", in the tabulation of geographical positions on p. 206, I repeat the above; and in the column of authorities I note "Vancouver, Tebenkoff's Atlas."

In 1874 Acting-Assistant Dall made a rough reconnaissance of that region, and his report is given in full in the annual report of the Superintendent for the year 1875. On p. 182, there is exhibited in detail the "Determination of position of Mount St. Elias" as follows; lat.  $60^{\circ} 20' 45''$ , long.  $141^{\circ} 00' 12''$ .

This further shows: 4th, Mr. Seton-Karr erroneously ascribes the data which were published in 1869, to the year 1874; 5th, he does not even quote the data properly, and unqualifiedly asserts that these are the only observations that have been taken and that there are no later ones; 6th, that to prove his case he was obliged to make the ungenerous insinuation that the observations had been tampered with.

There is much that I might say about that expedition and Mr. Seton-Karr's crochet to have Mount St. Elias in British territory; but what I have herein shown is a fair sample of all the rest.

GEORGE DAVIDSON,  
President of the Geographical  
Society of the Pacific.

The Assistant-Secretary R. G. S.

RAILWAY MILEAGE IN THE UNITED STATES.—The first annual Report on Statistics of Railways in the United States, to the Interstate Commerce Commission, gives the following figures for the railway mileage of the country on the 30th of June, 1888.

The total length was 149,901.72 miles. Of these Illinois possessed 9,708, Kansas 8,437, Iowa 8,230, Pennsylvania 7,992, Texas 7,902, Ohio 7,523, New York 7,488, Michigan 6,346, Indiana 5,723, Missouri 5,711, Wisconsin 5,057, Minnesota 5,032, Nebraska 4,900, Dakota 4,293, California 3,713, Colorado 3,676, Georgia 3,596, Alabama 2,833, Virginia 2,777, Tennessee 2,477, North Carolina 2,433, Kentucky 2,294, Florida 2,147, Mississippi 2,118, Massachusetts 2,082, Arkansas 2,030, New Jersey 1,914, South Carolina 1,880, Montana 1,712,

Louisiana 1,501, New Mexico 1,313, Oregon 1,312, West Virginia 1,216, Maine 1,206, Maryland 1,126, Utah 1,122, New Hampshire 1,070, Arizona 1,061, Connecticut 999, Washington 986, Vermont 946, Nevada 914, Indian Territory 879, Wyoming 863, Idaho 807, Delaware 313, Rhode Island, 214, and the District of Columbia 31.

Comparing the railway extension with the area of each division, the District of Columbia stands first with 2.29 square miles to each mile of road. Massachusetts counts 3.99 square miles, New Jersey 4.08, Connecticut 4.91, Ohio 5.45, Pennsylvania 5.65, Illinois and Rhode Island, each, 5.83, Indiana 6.35, Delaware 6.55, New York 6.56, Iowa 6.80, New Hampshire 8.69, Michigan 9.28, Kansas 9.72, Vermont 10.10, Maryland 10.84, Wisconsin 11.08, Missouri 12.15, Virginia 15.29, Nebraska 15.68, South Carolina 16.25, Georgia 16.54, Minnesota 16.57, Tennessee 16.97, Kentucky 17.61, Alabama 18.44, West Virginia 20.38, North Carolina 21.48, Mississippi 22.10, Arkansas 26.53, Florida 27.33, Maine 27.41, Colorado 28.27, Louisiana 32.45, Texas 33.63, Dakota 34.73, California 42.64, Washington 70.18, Oregon, 73.21, Indian Territory 73.57, Utah 75.74, Montana 85.32, New Mexico 93.35, Idaho, 105.14, Arizona 106.50, Wyoming 113.38, and Nevada 121.06. The proportion for the whole country, exclusive of Alaska, is 1 mile of railway to 20.14 square miles.

THE BAY OF SAN FRANCISCO.—There appears in the *Proceedings* of the American Antiquarian Society of Worcester, Vol. VI., Part 1, a letter from Mr. John T.

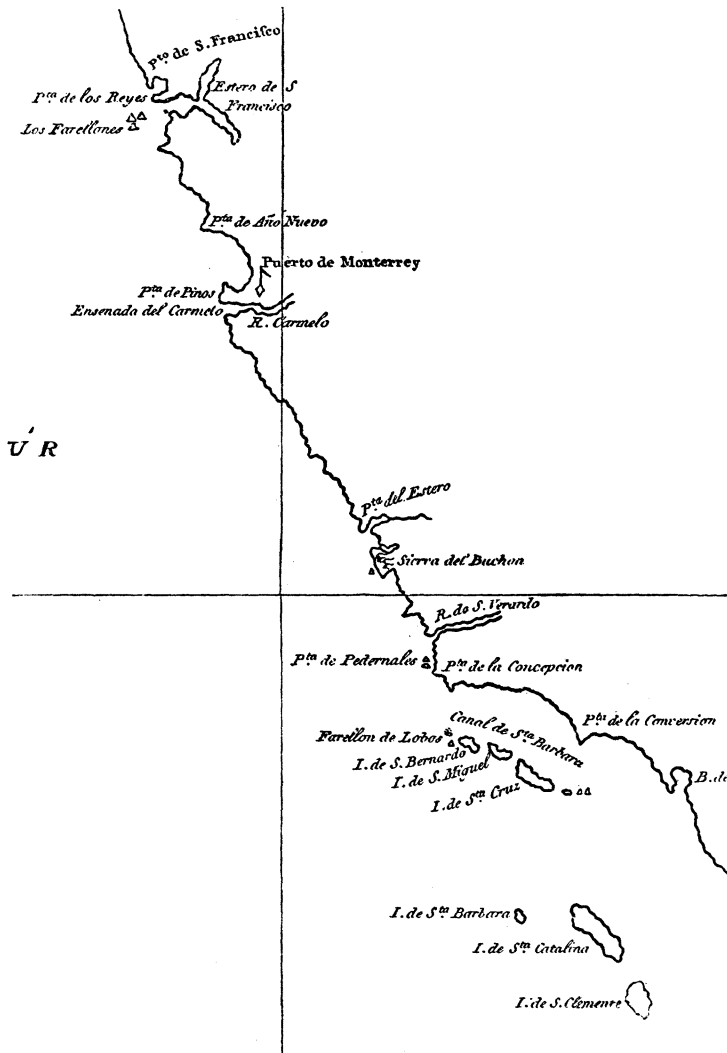
Doyle, of Menlo Park, California, on the subject of the discovery of San Francisco Bay.

Mr. Doyle, in a public address, delivered at the Commencement of Santa Clara College in August, 1870, called attention to the statements in Crespí's diary as to the discovery of the bay; and in October, 1873, a memorandum of his on the same subject was presented to the American Antiquarian Society by Col. J. D. Washburn. In this memorandum Mr. Doyle expressed the opinion that the first civilized men who saw the Bay of San Francisco were the members of Portolá's expedition in 1769; and that what the Spaniards had down to that time called the Bay of San Francisco was what we now term Sir Francis Drake's Bay. In his letter of Nov. 24th he says that these opinions have lately received confirmation on contemporary authority, through the discovery, by Prof. George Davidson, of the U. S. Coast and Geodetic Survey, of Miguel Costánzo's map,\* *Carta reducida del Océano Asiático ó Mar del Sur, etc., 1771*. A tracing of this map was made by Professor Davidson and presented to the Worcester Society, which has courteously allowed its reproduction in this BULLETIN. It shows the "Puerto de S. Francisco," almost in the place of Drake's Bay,\* near the "Punta de los Reyes," and behind this the "Estero de S. Francisco" penetrating the land, and unmistakably designed to represent the Bay of San Francisco with its northern extensions.

Costanzo's map is sufficiently rare to be something of

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\* The title and descriptive note, quoted at length by Mr. Doyle, have suffered in the printing. *Gobierero* is easily corrected, but the words *con cido* and *sin al adamente* do not show at once that they are meant for *conocido* and *señaladamente*.



COSTANZO'S MAP OF THE CALIFORNIA COAST, 1771

a curiosity, but Professor Davidson does not claim to have discovered it. He says in a recent letter: "It

was no discovery in the strict sense of the term, for I found it in an old publication of Dalrymple's, about 1790, if I recollect rightly. I can refer to the volume when I reach home."

In closing his communication, Mr. Doyle calls attention to a passage in the text and a note in Bancroft's History of the Pacific States, Vol. XIII., p. 157. It is there said that Mr. Bancroft's assistant, "in the *Overland Monthly*, made known for the first time to the English reading public the statements of Cabrera Bueno and Crespí, and in a few brief notes put the subject (the question concerning San Francisco Bay) in its true light."

Mr. Doyle points out that the *Overland Monthly* article appeared in June, 1874, nearly four years after the first, and eight months after the second, of his own publications on the subject of Crespí's diary. These publications are quoted in Vol. XIII. of the History, pp. 141 and 156, and Mr. Doyle infers, not unreasonably, that Mr. Bancroft had become acquainted with them before his assistant enlightened the English reading public. In view of this acquaintance with Mr. Doyle's work, the assertion made on p. 157 can only have found its way into print during one of those flashes of forgetfulness, which sometimes overtake men burdened with great cares.

CLIMATOLOGY OF BRAZIL.\*—In the Rio *Revista do Observatorio*, Nos. 5, 6 and 7, Mr. H. Morize continues and finishes his sketch of the Brazilian climate.

At Recife (Pernambuco) the annual rainfall is nearly

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\* BULLETIN, A. G. S., Vol. XXI., No. 2, p. 232.

119 inches, the heaviest precipitation being in June and the lightest in December. (The proportions, as printed, reverse the statement.)

At Victoria,  $8^{\circ} 9'$  S. Lat., the mean temperature of the year is  $77^{\circ}$  Fahr., the hottest month being February, with  $80^{\circ} .06$ , and the coolest July, with  $73^{\circ} .4$ . South-east winds prevail during the rainy season, and easterly winds for the rest of the year.

The rainfall at this point and at Colonia Isabel is about 40 inches annually.

At Bahia the mean temperature of the year is  $79^{\circ}$ , the extremes being  $88^{\circ}$  and  $70^{\circ}$ . The greatest heat is felt from December to March, but rarely exceeds  $83^{\circ}$ , while the average of the cool months of June, July and August is  $75^{\circ}$ . Rain is frequent, particularly in March, April, May and June, and again in October and November, and the annual fall amounts to 85 inches. The prevailing wind is the south-east, from April to September, and the north-east for the rest of the year.

The southern portion of Bahia and the provinces of Espirito Santo and Rio de Janeiro, with a part of the sea-coast of São Paulo and the eastern portion of Minas Geraes constitute the remainder of the sub-tropical zone. Not many observations have been made in Espirito Santo, but the mean temperature of the province is thought to be about  $75^{\circ}$  Fahr.

Rio de Janeiro possesses the most complete series of observations to be found in Brazil. The first of these were made in 1781 by the Jesuit Father Sanches Dorta; and after many interruptions at the beginning of the present century the series was taken up again with the creation of the Imperial Observatory, and has been con-



tinued without a break for thirty-seven years up to this day. According to these daily observations the mean annual temperature of Rio is  $74^{\circ} .3$ . The greatest heat is felt in January and February,  $81^{\circ} .5$ , and the lowest in July,  $69^{\circ} .4$ . The hottest year on record was 1868, with a mean of  $75^{\circ} .3$ , and the coolest 1882, with a mean of  $72^{\circ}$ . The hottest day was Nov. 25, 1883, when the mercury rose to  $99^{\circ} .5$ , and the coldest Sept. 1, 1882, when it went down to  $50^{\circ} .3$ .

In the hot season the heat increases from sunrise till the sea-breeze comes in from the S.S.E., between mid-day and 2 o'clock in the afternoon ; but if from any cause the breeze dies away, the heat may rise to  $86^{\circ}$ .

The prevailing winds are alternately from the S.S.E. and the N.N.W. The former blow when the sun approaches the Tropic of Capricorn and with his passage towards the north the winds change to the N.N.W.

The rainy season at Rio is from November to April, and the yearly precipitation is 43 inches. Rain falls on 104 days in the year and thunder-storms occur on 29 days. Hail is rarely known. Father Sanches Dorta frequently noted in his journal the appearance of the Aurora Australis ; but it has not been remarked at the Observatory.

The ancient Swiss settlement of Nova-Friburgo, which is situated 2' to the E. of Rio, on a spur of the Serra de Macahé, enjoys, through its elevation of nearly 3,000 feet above the sea, a charming climate, with a mean annual temperature of  $63^{\circ}$ ; an average heat in the hottest month, January, of  $69^{\circ}$  and a mean of  $57^{\circ}$  in July and August.

Queluz, in the province of Minas, stands somewhat

higher than Nova-Friburgo, and has much the same climate.

In the western part of the province of Minas a true continental climate is found at the little city of Uberaba, situated 2,500 feet above the sea. At this place, according to Father Germano d'Annecy, the mean temperature is  $70^{\circ}$  and the minimum  $27^{\circ}.5$ . This statement is confirmed by Martino, who declares that a fall of snow is nothing uncommon in the region, which is almost on the twentieth parallel; and also by Dr. J. Hann, who relates that in some places between Barbacena and Ouro Preto there was in June, 1870, a temperature of  $26^{\circ}$ , that lasted for five or six days, and that at Barbacena the thermometer marked  $21^{\circ}$ .

At the station of Cascata, S. Lat.,  $21^{\circ} 33'$ , on the Serra de Caldas, between the provinces of Minas and S. Paulo, the variations of temperature are even more marked, the observations for 1884 showing  $104^{\circ}$  for January and  $32^{\circ}$  for June.

All the neighboring country shares this continental climate. At Ribeirão Preto, four degrees and a half to the W. of Rio, and elevated only 1,700 feet above the sea, frosts are by no means rare in June and July.

S. Paulo, the capital of the province of the same name, stands on a table land of the Serra do Mar, and has a climate much like that of Ribeirão Preto. The annual mean is  $63^{\circ}$ , and frosts are frequent in June and July, though the mercury does not quite descend to  $32^{\circ}$ . From October to December the winds blow from the S. E., from January to March from the N. N. W., and during the other months from the N. E. or S. E.

On this table land, and on those of the neighboring provinces, the climate marks a transition between that of the sub-tropical zone and that of the temperate region.

The southern portion of S. Paulo and the provinces of Paraná, Santa Catharina and Rio Grande form the third great division of Brazil, with one of the finest climates in the world. The temperature is mild and the mean is always below 68°. The moderate cold of July and August is equally favorable to the health of Europeans and to the development of European industries; and for this reason the current of immigration has been almost exclusively directed to these provinces.

The distribution of the rains is different from that which prevails in other parts of the Empire, and the distinction between the wet and the dry seasons is much less marked.

At Joinville (26° 17' S.) the rainfall is 88 inches, nearly all in spring and summer, but on many of the highlands the rain comes in winter.

Snow is not rare, and at Lages (27° 43' S. and 3,200 feet above the sea) there fell between the 26th and the 30th of July, 1858, such a quantity of snow that 30,000 head of cattle perished. Light falls are frequent even at a low elevation above the sea, but at Vaccaria (28° 33' S.) not less than two feet six inches fell in August, 1879.

In the part of the province of Rio Grande south of 27° 5', the rains come principally in the winter.

At Curytiba, the capital of Paraná, the mean temperature is 68°, at Joinville the same, and at Nova Petropolis it is 66°. One of the most important cities is Pelotao, situated in 31° 46' S. Here there is a mean

annual temperature of  $63^{\circ}$ , the lowest point being  $31^{\circ}$  in June, and the highest  $100^{\circ}$  in January. Thunder is heard on 33 days and rain falls on 83 days in the year.

Mr. Morize concludes his survey with the observation that the hot zone of Brazil is not kindly to the European constitution, but that this readily adapts itself to the climate of the second zone and finds that of the third favorable to a perfect health and vigor.

It will not have escaped the reader's attention that the observations so far recorded are limited to the provinces on the coast of the great Empire, and that nothing is yet known of the conditions in the interior.

METEOROLOGICAL OBSERVATIONS AT MEXICO. — The *Observatorio Meteorológico-Magnético Central*, of Mexico, has issued a table of calculated results of observations, made during the years 1877–1888. The metric system is employed :

Barometer :	annual mean . . . . .	586.42
“	greatest height . . . . .	594.19
“	lowest . . . . .	579.80
Temperature :	mean, in the shade . . . . .	15.5
“	highest in 12 years (Apr.) . . . . .	31.6
“	lowest “ “ . . . . .	1.7
Humidity :	annual mean . . . . .	60
Rainfall :	total in 12 years . . . . .	7424.9
“	greatest in the year (Aug.) . . . . .	63.5
Cloudiness :	mean annual . . . . .	5.0
“	prevailing direction . . . . .	S.W.
Wind :	mean annual velocity . . . . .	0.8
“	prevailing direction . . . . .	N.W.

The Observatory is situated in N. Lat.  $19^{\circ} 26'$ , W. Long. (Greenwich) 6h. 36m. 27s. Height above the level of the sea, 2,282m. 5 (7,488.65 ft.). Height of the O of the barometric scale, above the side-walk of the National Palace, 17m. 04. Hypsometer, mean boiling

point,  $92^{\circ} 88$  (Fahr. 199.05). Magnetic Data : mean declination  $8^{\circ} 16'$  from N. to E.; mean inclination  $45^{\circ} 03' 03'' .5$ .

THE COLUMBUS COLLECTION IN ITALY.—According to the plan decided upon by the Royal Commission the Collection will be divided into Six Volumes or Parts :

PART I.—*Writings of Columbus*.—Autographs and other writings, with critical illustrations.

PART II.—*Columbus and His Family*.—Origin of the Family, Birthplace of Columbus, Complete Collection of documents on the family and the person of Columbus, Medals and Portraits (supposed), Remains of Columbus : in Cuba or Santo Domingo ?

PART III.—*Discovery of America*.—Written Correspondence, with mention of other important voyages of the time, Contemporary Narrators of the discovery, Passages of Geographical Works unpublished, or existing only in very rare editions, in which mention is made of Columbus's discovery, or of those that followed and extended his, down to the year 1530.

PART IV.—*The Navigation and Cartography of the Discovery*.—Ships in the Time of Columbus, Scientific Resources, Nautical Charts and other instruments of navigation in use, Notices of Charts made by Columbus and by his brothers, Maps of the discovery down to 1530.

PART V.—*Monographs*.—Italian predecessors or successors of Columbus, to the year 1530.

PART VI.—*Bibliography*.—Columbian Bibliography, Italian Bibliography relating to the discovery of America.

Most of these parts have already been assigned to persons especially qualified for the work. Mr. H. Harris is charged with the first part, the second has been confided to the Ligurian Sub-Committee, the third to Commissioner Berchet, the fourth to Commissioner De Albertis, and the fifth has been distributed among a number of scholars and scientific men. The sixth part has not yet been assigned.

The search made for documents in the Vatican archives has yielded good results, and interesting dispatches have been found in the Este Chancery at Modena; but, according to the Italian Geographical Society's *Bollettino*, from which these facts are taken, the examinations made at Naples, Palermo, Cagliari and Florence had, up to August last, produced nothing of importance.

ROME AND OTHER ITALIAN CITIES.—A recent publication, issued by the Italian Ministry of Agriculture, Industry and Commerce, presents some interesting facts concerning the larger cities of the kingdom.

The population of Rome in the spring of 1870 was 226,022. It had risen, at the end of 1871, to 244,484; at the end of 1876, to 272,560; and it amounted, on the 31st of December, 1881, to 300,467. The latest enumeration, made on the 31st of December, 1888, showed a total of 401,044.

On the 31st of December, 1881, the whole area of the city was 14,674,500 square metres. On the 31st of March, 1888, the area was 15,711,500 square metres. The ground covered by buildings, including court-yards and gardens attached to houses, but leaving out the

space occupied by churches and monuments, increased from 3,403,150 square metres on the 1st of January, 1882, to 4,718,115, on the 31st of March, 1888.

The streets of the city covered 2,492,469 square metres, on the 1st of January, 1882, and 3,487,861, on the 31st of March, 1888.

The churches and monuments occupied 578,170 square metres in 1882 and 598,220 in 1888.

The public fountains furnishing water number 356, classed as follows: 11 monumental, 16 smaller, 162 ancient sources, and 167 new ones, opened since 1870.

Nine other places are compared with Rome. Naples, still the largest city of the Peninsula, has done no more than hold her own. In 1881 she had 494,314 inhabitants and in 1888 512,000. The others are :

Milan, (1881).....	321,839	(1888).....	406,592.
Turin, " .....	252,832	" .....	305,144.
Palermo, " .....	244,991	" .....	261,571.
Genoa, " .....	179,515	" .....	206,088.
Florence, " .....	169,001	" .....	no ret'rn
Venice " .....	134,810	" .....	149,635.
Bologna " .....	123,274	" .....	136,608.
Catania " .....	100,417	" .....	no ret'rn

The population of the kingdom, on the 31st of December, 1881, was 28,459,628. On the 31st of December, 1887, the number was found to be 30,260,065 ; an increase of 1,800,437. For the same period, 1881-1887, the total emigration was 1,154,199. It is clear, therefore, that the large cities do not grow at the expense of the country, but by a slow and healthy process.

There is nothing abnormal in the proportions of the Italian emigration. It bears comparison with that from the British Islands. The population of the United

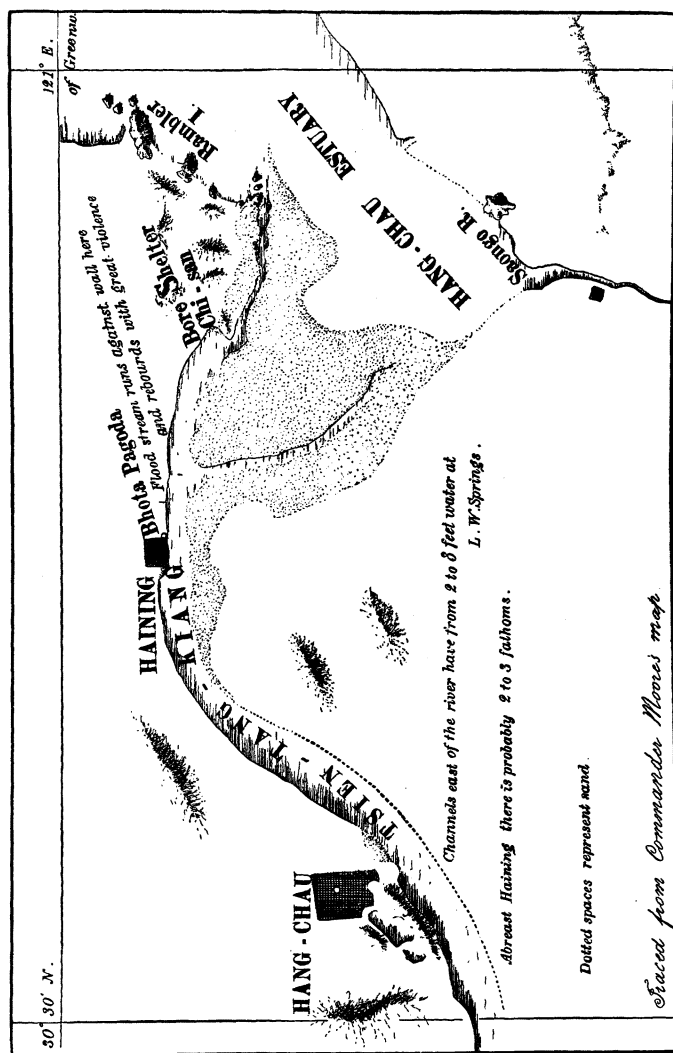
Kingdom was, on the 31st of December, 1871, 31,857,338. The census returns for 1881 showed a total of 35,241,482 ; a gain in the ten years of 3,384,144. The emigration for the years 1881-1887 amounted to 2,498,540 persons, one-fourth of them classed as foreigners, so that the actual British emigration for the period was 1,873,905. The increase of the population, taking the average of the ten years ending with 1881, would be, for seven years, 2,368,898 ; and the actual gain for the seven years, less the emigration, would be 494,993.

THE BORE OF THE TSIEN-TANG KIANG.—Commander Osborne Moore, R. N., contributes to the Journal of the China Branch of the Royal Asiatic Society, a paper on the Bore of the Tsien-Tang Kiang (Hang-Chau Bay).

The Hang-Chau Gulf, he says, had always excited his curiosity because, though it led into the heart of a great silk country, it was shunned by seamen. In his paper he has endeavored to show why the Tsien-tang is blocked.

The furthest limit in the Gulf for safe navigation is an island (Rambler Island) at the S. W. extremity of Chapu Bay. Here, on the 19th of September, 1888, Commander Moore's vessel, the *Rambler*, was moored. A tide-pole was erected and observations were made of the rise and fall of the water for three days and nights, beginning with full moon. At the same time observations were noted at West Volcano Island, 45 miles E. of Rambler Island ; and a fortnight before records had been made simultaneously at West Volcano Island and Chang-tau. It was therefore possible to trace the pro-





gress of the tidal wave from the ocean to the estuary of the Tsién-tang. The miles are geographical.

September 20th a start was made, with the first of the

flood-tide, in two steam-cutters and a sailing-cutter, to meet the Bore. All went well for three hours, when the ground was struck, with the tide running 10 to 11 miles an hour, and the water rose 9 feet in half-an-hour. Fortunately, the vessels had missed their way, the chart being incorrect, and instead of meeting the main Bore had dropped into the south branch of it. That afternoon the river was found, and the boats were run ashore opposite Haining, with anchors laid out and buried and every precaution taken for the next flood. The keels of the boats were 7 to 8 feet above low-water, and they must have been half-a-mile from the nearest part of the Bore. The steam-cutter had 33 fathoms of stout chain with a 60-lb. anchor, backed up by 4 iron weights of 56 lbs. each, and a 2 cwt. bag of coal on the bight of the chain,  $1\frac{1}{2}$  fathoms from the anchor.

The sailing-cutter had a 60 lb. anchor buried in the sand, with 30 fathoms grapnel taut, and 2 2-cwt. bags of coal on the grapnel, near the anchor.

It was a still night, with a little rain. The murmur of the Bore in the distance was heard at 11.29; the cascade could be seen at 11.55, and it passed with a loud roar at 12.20, well over on the north bank of the river. All that could be seen was a steep slope of white water, over-falling and pouring over itself as it advanced, the river filling up to the level of the flood as the Bore went by. At 12.25 the boats floated at once. The steam-cutter brought up with a jerk and drove to the westward, the sailing-cutter following, and both dragged for a distance of 3 miles in 25 minutes. The strength of the current must have been at least 10 miles an hour, and the height of the Bore was 10 to 11 feet. When

the anchors of the cutters were weighed it was found that the flukes which had been in the sand, and a great part of the chains, were burnished bright like polished silver. The coal in the bags, with the exception of  $\frac{1}{2}$ -cwt. in one bag, was all washed out, and the bags were filled with sand tightly packed.

The sudden rise of water, which occurred with every flood at Rambler Island, commenced this night at 9.30, so that there was an interval of nearly 3 hours between the appearance of the Bore there and at Haining.

September 21st, at 9.45 A. M., an overfall was seen 4 or 5 miles in the offing to the N.E. It reached the *Rambler* at 10.15, and disappeared to the westward past Rambler Island. Here the water suddenly began rising at 10 A. M., and rose 13 feet 11 inches in 1 hour.

From the south bank of the entrance of the Tsientang Kiang the Bore was seen approaching along the sea-wall between Haining and Chi-san at 12.24.

The weather was calm and there was a good deal of mirage. The appearance was that of a long, crested wave, breaking in places, in others only about to break; the top of the flood curving towards the *Rambler* and drawing back, hurried on by the great speed of the Bore. At 12.47 the Bore passed Haining Pagoda, the front part a white cascade of foaming water, and the south side a long line of breakers and wall of water, tapering from the front to the smooth following water half-a-mile behind, the breakers discharging outwards towards the south bank of the river.

For a long distance behind the crest there was on the top of the Bore broken water, in which no ordinary boat would have lived, and conspicuous above the disturbed

water a second roller or miniature Bore occasionally rose up, and after moving onwards with the rest for a time, would leap up as if struck by some unseen force, and disappear in a cloud of spray. The height of the Bore was 9 feet, but the broken water behind it could not have been less than 13 or 14 feet above the level of the river in front. The Chinese said this was not a high Bore. Nine junks came up behind the disturbed water, with sails set (there was no wind), and entered the river at great speed.

A feature worth noticing was the deliberation of the curved side in breaking. It looked, at times, as if the great speed checked the curve just as it was about to make its arch over on the sand.

Commander Moore finds himself obliged to disagree with Dr. Macgowan, who has recorded his observation of a Bore 30 feet high at Hang-chau, and has affirmed that the cascade was higher off the city than at the mouth of the river. Commander Moore argues that a Bore cannot be higher than high-water spring tide, which has a range at the mouth of the river of 19 to 20 feet, while the cascade there is generally three times as high as it is off the city of Hang-chau.

During the few days, stay of the *Rambler* in Hang-chau Gulf, her cables were much damaged by the violent ebb-stream, which ran with its greatest velocity between the second and third hour after high-water; and when they were weighing anchor on the 24th of September, a north-east wind sprang up with the flood-tide, and a severe overfall surrounded the ship for two hours with waves as high as the gunwale. She got away at last with the loss of all the pauls and bars of the capstan.

The junks that frequent Haining ground one and a half to two hours after high-water on a platform of stones enclosed by piles alongside the sea-wall. This platform is 1,100 yards long and 20 feet wide, and 7 to 8 feet above low-water ordinary spring tide. It is protected at the eastern end against the Bore by a semi-elliptical buttress, 253 feet long and 66 feet wide. The sea-wall is said to be more than 500 years old. It extends without interruption to Chi-san eastward and 19 or 20 miles up the river. It is about 30 feet wide and is faced with blocks of stone 5 feet long, 16 inches broad and 14 inches thick, laid endways out and joined together by rivets of iron. Its top is 3 to 4 feet above high-water. About 1,000 men are constantly employed in its repair, and the 12 miles of it that came under Commander Moore's inspection were in excellent condition. Behind the sea-wall is an embankment from 50 to 60 feet wide, and this is continued with more or less regularity from the Tsien-tang Kiang to Woosung, round Yangtze Cape, a distance of 120 miles.

Commander Moore returned to Haining on the 4th of October, and observed the Bore for four days. According to the natives, no one of the cascades seen in these two visits was as high as the highest winter Bores.

The Bore occurs about the time of full moon and new moon and, speaking generally, passes Haining as the moon crosses the meridian.

The Chinese declared that the Bore passed Haining with every flood-tide throughout the year, but this statement lacks confirmation.

The causes of the Bore are three :

1. The funnel shape of the Hang-chau Gulf, which is

open to the eastward, directly in front of the tidal wave from the Pacific. The Gulf is 50 to 60 miles wide at the mouth and about 10 miles wide at the narrower part where navigation ends, and the general depth is much greater across the mouth than it is in the western part.

2. The large area of sand-flats at the head of the Gulf.

3. The out-going stream from the Tsien-tang Kiang.

If Dr. Macgowan has overestimated the height of the Bore in the Chinese river, he is sobriety itself compared with some of those who have described the *pororoca*\* of the Amazon. Commander Moore quotes from Alison's "History of Europe," chap. 67, a passage in which occurs the following lively picture of the phenomenon :

"In the shock of the enormous masses of water, a ridge of surf and foam is often raised to the height of a hundred and eighty feet ; the islands in the neighborhood are shaken by the strife ; the fishers, the boatmen and the alligators withdraw trembling from the shock."

Naturally enough, the historian's rhetoric reduced Commander Moore to the state of an alligator and a boatman. "I rose from the perusal of the description," he says, "with a feeling of humiliating inferiority, and

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\*The *Century Dictionary* (art. BORE) spells this word *pororoca*, but the true form is the one given by the Brazilian writers. To quote but two : the *Corografia Brasileira*, vol. 2, p. 260, defines the bore as the result of the encounter between the river current and the tide, the shock causing "very rough waves, called *porórócas*," (*ondas encapelladas, chamadas porórócas*) ; and the *Diccionario Geographico*, of Lopes de Moura, vol. 1, p. 44, says that the phenomenon is observed "with every tide at the times of new and full moon ; the natives of Brazil call it *poróróca* ;" (*em todas as mares de lua nova e cheia ; chamão-no os naturaes do Brazil poróróca*).

the conviction that nothing would astonish me in future, . . . quite prepared . . . to learn that there is a Bore, about the globe somewhere, as high as the ball of St. Paul's Cathedral."

EARTHQUAKE OBSERVATIONS IN JAPAN IN 1886.—In the *Transactions* of the Seismological Society of Japan, Vol. XIII., Part I., Mr. John Milne presents a translation, with prefatory note and general observations, of a Report published by the Meteorological Central Observatory at Tōkyō. This report refers to observations, made at some 650 stations in various parts of the Empire in 1886, and gives in a second portion the analyses of earthquakes recorded by instruments during eleven years at the Observatory.

The total number of earthquakes in 1886 was 472, while in 1885 there were 482. The districts neighboring the Japan Sea felt few or no shocks; the ranges of mountains forming the back-bone of the mainland and passing between Tosan, Hokuriku, Sanin and Sanyō, seeming to divide the country into two portions, one of which is constantly shaken, while the other is almost undisturbed. The earthquake seasons are not well defined. The monthly average for 1886 was 39.3. March, May, August, September and December were above the average and the other months below it. Taking the four seasons, the greatest number of shocks occurred in spring and the smallest in autumn. In 1885 the contrary was the case. Taking the time of the day for the two years there were more earthquakes between noon and midnight than between midnight and noon.

The areas of the districts shaken are given in square

*ri* (1 square *ri*=5.95 square miles). The total area shaken in 1886 was 92,050 square *ri*, or 3.8 times the total area of the country. In 1885 the area shaken was 132,300 square *ri*. In 1886 349 shocks were limited to less than 100 square *ri*, 104 extended over more than 100 and less than 1,000, 19 were felt through an area of from 1,000 to 4,000, and one shook an extent of more than 5,000 square *ri*. The intensity was variable. With regard to origin, 228 shocks may be traced to the coast or under the sea, and 244 originated beneath the land. These latter merely caused limited disturbances.

The observations do not strikingly illustrate the relation of earthquakes to volcanoes. Many shocks were felt in the districts of Musashi, Kazusa, Shimōsa, Kōdzuke, Shimotsuke and Hitachi, all nearly inclosed by ranges of volcanoes, but there were many earthquakes also in Kii, which is quite apart from any volcano.

There are many provinces in which there are volcanic peaks, but where no earthquakes have been felt. One of the severe earthquakes of the year occurred on the 13th of April at 5.50 A. M. Its direction was not uniform, but was from south-west to north-east in several of the places most strongly shaken, and in two places the vibrations continued for three minutes. Its origin seemed to be in the Pacific. At about dawn of the same day there was an eruption of Mount Tarumai, in Iburi, Hokkaido (Yesso), and a feeble shock was felt at Nemuro in the same island.

In the eleven years, 1876–1886, during which systematic records were kept at Tōkyō, there were 958 earthquakes. The largest number for any one year was 77, in 1880; the smallest, 32, in 1883. The average for the



seasons was 15. There were more than 15 in the spring and in the winter, and the numbers for summer and for autumn fell below the average. The highest average was for the winter months and the lowest for the summer.

Generally speaking, the disturbances are frequent at night, especially from 8 to 9 P. M., during the six months from July to December. No very severe shock has occurred at Tōkyō since the observations were begun.

Nothing definite has yet been found as to the relation between earthquakes and atmospheric pressure. With regard to temperature, the shocks were numerous when it was falling, few when it was settled, and tolerably frequent when it was rising. Many earthquakes affect but a very small area, and it is Professor Milne's belief that if instruments were more generally distributed throughout Japan and the number of observers increased, the number of shocks recorded might easily be increased to 1,000.

LIEUT. TAPPENBECK'S LAST REPORT.—A few pages of the *Mittheilungen aus den Deutschen Schutzgebieten*, Band II, Heft III, are devoted to the memory of Lieutenant Tappenbeck, one of the latest victims of the African fever; and in the same number appears his last report, written at Kamerun, July 12th, while the hand of death was on him. The report, he says, is brief, but will be followed by one containing more ample details. Captain Kund set out from the Jeundo Station for the coast, on the 12th of March, with sixty persons. Next day natives reported to Lieutenant Tappenbeck that Kund's company had been fired upon by the Jande and

Jatenge ; but the Jeundo and other small tribes remained friendly and peaceful, and offered no interruption to the work on the Station buildings. Supplies of food came in daily, yams, bananas, manioc, sweet potatoes, maize, ground-nuts, palm oil, pumpkins, pine-apples and lemons, besides eggs and fowls, goats and sheep.

The Ngumba, the only tribe that could have blocked the road from the Jeundo country to the coast did not dare to show any hostility to the Germans. This tribe is dwindling physically and morally, and must in no long time disappear before the Bulei. "Other tribes," says Lieutenant Tappenbeck, "neighbors of the Jeundo, are always on bad terms with them, for the most part through envy, because the whites dwell in the Jeundo territory ; though it may very well be, that this tribe turns our presence to account in its quarrels by threatening, without our knowledge, to call upon us for help. The Ngumba constantly asked us to aid them against the Bulei. I have always refused these requests for the aid of our weapons, and have sought to make the people understand that we were friendly to all, and that though we lived among the Jeundo, every one, whether Toni or Bane, or Jatenge, or Jetudi, or Tinga, was free to come to us."

This was Tappenbeck's rule in African travel.

On the 9th of May orders came to march to the Sannaga River. The start was made on the 15th with 120 men, and on the 24th the Sannaga was reached at about the point occupied the year before. Four days were lost in order to recover a stolen gun. On the 27th the party arrived at the capital of the Chief Ngirang. This town, which lies in  $4^{\circ} 42'$  N. Lat., and about  $12^{\circ}$

25' E. Lon., contains 500 or 600 huts and 1,800 inhabitants, and is one of the greatest ivory and slave markets of the southern Adamaua country, to which it belongs politically, though not geographically. The German officer and his people were received in the most friendly way, in spite of the fact that Guatare, the village they had been forced to burn the previous year, belonged to Ngirang's land and was ruled by one of his brothers.

During the six days of their stay the chief supplied all their wants without compensation. Lieutenant Tappenbeck accepted the first gifts forced upon him—four elephant tusks and a native robe—but refused to take any more, telling the chief that it was impossible to take presents for which no equivalent could be offered. To this the chief replied that he did not make presents in order to have something given to him in return; “an answer,” says Lieutenant Tappenbeck, “which I then heard for the first time in Africa.” These gifts that were sent back were a quantity of very valuable ivory and 120 women, for the chief had a royal mind.

It was not easy to send messages from Ngirang's town to the coast, for there is no friendly feeling between the Kamerun coast tribes and those of the Adamaua region. These latter are great slave-hunters, and while the German party was staying with Ngirang, some of his warriors brought in 180 men, women and children as prisoners, and 100 slaves, mostly women, were ready to be sent to Iola. The district on the northern bank of the Sannaga, passed over by the expedition of the preceding year, was completely devastated. Whole villages were demolished and those of the natives, who escaped

from the slave-hunters, took refuge on the islands of the Sannaga. All this was the work of the chief Mango, whose town lies two days' journey to the eastward of Ngirang's. It was Lieutenant Tappenbeck's purpose to visit this slave-hunting chief at a later day. The northern side of the Sannaga, he concluded from what he saw, would soon be unable to supply victims for the trade, and the hunters would cross the river to the thickly-peopled districts on the south. Ngirang and Mango sent their slaves and ivory to Sokoto, Adamaua and Bagermi. The dealers said that the greater part of the merchandise went still farther, from Sokoto to Salaga, which supplies copper, and from Bagermi to Bornu, and probably to East Africa.

"These names," says Lieutenant Tappenbeck, "are familiarly known to every dealer." "It is my firm conviction," he adds, "that the Jeundo Station will become a great protection to the tribes in the neighborhood. No slave-hunters will venture to invade a land where a white man has his house, and it would be ill for them if they did, for I would undertake to defeat chiefs like Ngirang and Mango with no more than 100 well-armed men. Their success has been won by the sound of their names; and when Ngirang sends out 50 warriors, they are enough to put 500 enemies to flight, such is the spell of a terrible name over the minds of the blacks, not only here, but throughout Africa. If our Station can hold out with the same success against the hostile tribes for a year, a single European with thirty men will be enough to enforce respect. It is of great importance to keep the roads open towards the Adamaua country, so that we may become thoroughly acquainted with the

relations of that district. This will take years, but we shall then be in a position to decide whether it is possible to suppress the slave-trade, and how this is to be done."

He returned to the Station on the 10th of June, and for some days the people came in crowds to see the men who had been to Ngirang's town and had actually come back. A number of the Jeundo natives wanted to go with the Germans to the coast. Lieutenant Tappenbeck chose five men, among them three sons of a chief, named Zonu, on whose ground the station stood. On the 17th of June he set out with 138 persons, and five hours after shots were fired at the caravan by natives of the Jatenge tribe. The next village was immediately occupied and put in a state of defence. These Jatenge belonged to the tribe that had attacked Kund's party. Three months before they had fallen upon the Jeundo, and as these had asked help of the Germans and had been refused, the Jatenge perhaps imagined that the white men feared them.

Lieutenant Tappenbeck soon undeceived them. On the 20th of June a party of 20 men fell upon the assembled force of the hostile tribe, with which the Jande had united themselves, while they were all engaged in war-dances, and struck such terror into them that they fled without firing a shot. Two of their most prominent chiefs and nine others were killed, and the number of wounded must have been considerable; and the survivors did not reappear.

This result greatly pleased the German commander, who had seen for some time that a collision with the natives was rather to be desired than avoided in order

to re-establish the belief in the invincibility of the white men. The Jetudi, who were before planning an ambush for the expedition, made haste to send messengers with protestations of their friendly feelings. Five days after the fight the chief Zonu said: "Now there is nothing to hinder your march to the coast. No one will meddle with you, and if you send a messenger with letters, he will go through in safety." It was easy to believe he meant what he said, for his sons were with the party and free to withdraw if they wished.

The Germans had five men wounded and not one killed, and this result seemed to the natives a miracle.

On the 4th of July the Kribi Station was reached after twelve extraordinary forced marches. Eighteen Mpangwe, whose time had expired, were left there.

In closing his report the young officer says he had been suffering for some time with fever, but that all the people, left at the Jeundo Station, were in good health.

STANLEY'S TRIUMPH.—The letters and the telegrams have told the result of Stanley's march through the unknown centre of Africa.

The story is not yet put into form. There are breaks and lapses in the narrative, and dates—always a weak point in Stanley's accounts—are often wanting; but the explorer has returned from the wilderness with an immense accession of renown, with new discoveries, not yet reconcilable with previous reports, and with Emin Pasha himself,\* for whose rescue the expedition was undertaken. The first dispatch was received by the Emin

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\* Not alone, but with his daughter (*filiola auctum*, in Ciceronian phrase,) and, apparently, no mother for the child.

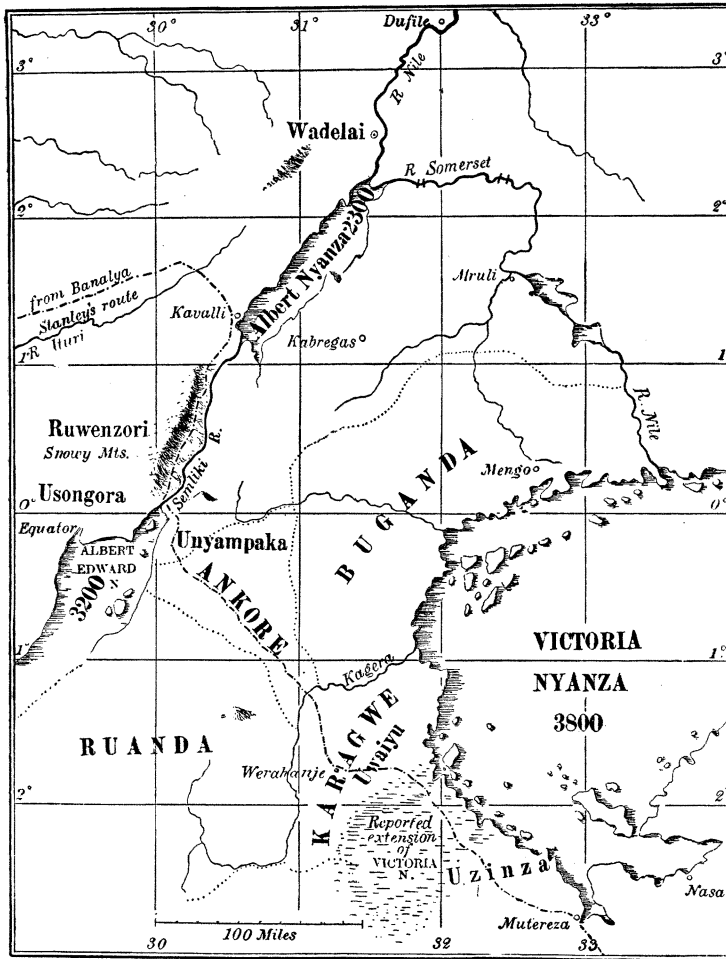
Relief Committee in London on the 4th of November. It announced the capture of Emin and Jephson on the 18th of August, 1888, the revolt of Emin's troops and their union with the Mahdists, and a subsequent reverse of the latter. It added that a letter waiting for him near the Albert Nyanza urged the necessity of Stanley's arrival before the end of December, that he arrived on the 18th of January, that he waited from the 14th of February to the 8th of May for the fugitives, and that he then left the Albert Nyanza, homeward bound.

Nothing was said of what occurred between the 18th of January and the 14th of February, and the rest of the dispatch read :

“ By the route taken I traversed the Semliki Valley, the Awamba, the Usongora, the Toro, the Utraiyana, the Unyampaka, the Ankori, the Karagwe, the Uwaiya, the Uzinza, the South Victoria and the Nyanza. No hostile natives were met. Since we left Kabrega we travelled along the base of the snowy range Ruwenzori. Three sides of the Southern Nyanza or Nyanza of Usongora, which is called now Albert Edward Nyanza, are about 900 feet higher than Albert Nyanza, having an exit at Semliki which receives over fifty streams from the Ruwenzori and finally enters the Albert Nyanza, making the Albert Edward the source of the southwest branch of the White Nile, the Victoria Nyanza being the source of the southeast branch.”

The map shows the supposed route to the southern end of the Victoria Nyanza, beyond which, about 350 miles to the southeast, lies Mpwapwa.

The Ruwenzori Range is a real addition to the maps, and it is something to have settled the relation of the



STANLEY'S ROUTE TO MPWAPWA.

Muta Nzige (Albert Edward Nyanza) to the Nile system, though it must be regretted that Stanley felt himself free to baptize this body of water. He has made wonderful discoveries, but his taste in names is deplorable.



Variety is the spice of geography, as well as of life, and the compliment to the Prince of Wales would have been the same if the lake had been called H. R. H.

The extension of the Victoria Nyanza to the southwest (indicated on the map) is, of course, to be accepted as news, though it contradicts Stanley's previous reports in his "Through the Dark Continent," Vol. I, pp. 156-186, 211-241, Vol. II, p. 18: "The saucy English-built boat which had made the acquaintance of all the bays and inlets of the Victoria Nyanza," etc.; and their restatement, in substance, seven years later, in "The Congo," Vol. I, p. 20: "The Dark Continent had been traversed from East to West, its great lakes, the Victoria Nyanza and the Tanganika, had been circumnavigated," etc.

The smallest area assigned to the extension just discovered is 2,000 square miles, the largest 27,000; and it ought to have been visible at the time of the careful circumnavigation.

Burdened as he was with anxieties and pre-occupied with his one great object, the rescue of Emin, Stanley could give but little attention to the details of exploration, and much has necessarily been left to a future day and, it must be hoped, to him.

Writing, as he evidently did, under a pardonable sense of impatience at the obstacles interposed by Emin, when everything was ready for his safe retreat, Stanley seems yet to have allowed himself too great a licence in his expressions. The reproach of weakness and lack of resolution, nowhere directly made, underlies all his remarks concerning Emin.

It is implied that the revolt of Emin's troops was prima-

rily due to the feebleness of their commander ; an implication the more ungenerous that Stanley has the ear of the public.

When it is remembered that Emin Pasha maintained his authority and controlled his vast Equatorial Province from the date of his appointment by Gordon in 1878 down to the present year, with no other European help or advice than that of the Russian, Dr. Junker, for a time, and that of Captain Casati through nearly the whole period, it is not too much to say that any suggestion of incompetence on his part simply discredits the man who makes it.

Stanley has perhaps an inadequate appreciation of other men's work, but his letters show that his success has only strengthened his trust in the protection of an overruling Providence. This is the mark of an earnest nature. There is no reason to believe that the ruin of all his hopes has availed to shake the faith of Emin, and it is more than probable that the Mahdists recognize in their own conquest of the Equatorial Province the direct interposition of God.

*The United States : Facts and Figures illustrating the Physical Geography of the Country, and Its Material Resources. Written for, and published in part in, the Encyclopædia Britannica (Ninth Edition). By J. D. Whitney.*  
Boston, 1889.

Professor Whitney says, in his preface : " As published in that work (the Encyclopædia Britannica), portions of the matter furnished were found to have been omitted altogether, and other portions materially altered by attempts at condensation, so that the meaning was often

obscured, and sometimes even rendered entirely unintelligible. . . . Under these circumstances I have thought it best to reprint the article as originally written, with very few alterations, and these mostly in the form of notes."

Professor Whitney has rather understated his case. His article, as printed in the *Encyclopædia Britannica*, contains less than half the matter of the present work, exclusive of the Appendix, and the student rises from the comparison of the two with the uncomfortable feeling that other articles in the great book of reference may have suffered to a like extent at the publishers' hands.

It was a difficult task to present within a moderate compass an account of a territory so vast as that of the United States, and the work has been well done, with no less regard to the interest of the subject than to accuracy of statement.

The divisions are : Physical Geography and Geology, Political and Natural Subdivisions, Climate, Forests and Vegetation, Scenographical, Population, and Immigration, The Public Lands, Mineral Resources, Agriculture, Manufactures, Foreign Commerce, and an Appendix, devoted to a Sketch of Geographical Discovery on the Pacific Coast, a Sketch of the Progress of American Cartography during the Past Half-Century, and Remarks on the Methods by which the Elevations of Mountains in the United States have been determined.

Professor Whitney's Theory of the Prairies, which is the result of years of investigation on the spot, will be called in question. He is convinced that the real cause

of the absence of trees on the prairies is "the physical character of the soil and especially its exceeding fineness, which is prejudicial to the growth of anything but a superficial vegetation, the smallness of the particles of soil being an insuperable barrier to the necessary access of air to the roots of a deeply-rooted vegetation." It is found that wherever in the midst of this fine soil coarse or gravelly patches exist, there dense forests occur. This theory that fineness of soil is fatal to tree-growth finds its most remarkable support in the fact that in Southeastern Russia the limits of the *black earth* and the treeless region are almost exactly identical.

It will surprise many to learn that the value of the wood consumed as fuel in the United States was, in 1880, three times as great as that of the coal mined. "In fact," says Professor Whitney, "the timber of the country is the greatest of all its material possessions;" and he seems to be entirely free from the feeling of anxiety with which many regard the disappearance of our forests. "The timber," he says, "is restored, after destruction by man, by the kindly hand of Nature. This is the case, at least, over the whole of the once densely-timbered portion of the country, where the various growths succeeding each other after the primal forest has been removed offer a satisfactory substitute for that which has been made use of, either naturally or as an easily attainable result of cultivation."

It may be objected to this cheerful view of the situation, that very many tracts, once fully timbered, are now bare and desolate; but even the kindly hand of Nature must sometimes feel the need of repose.

*The Bermuda Islands: A Contribution to the Physical History and Zoology of the Somers Archipelago. With an Examination of the Structure of Coral Reefs. By Angelo Heilprin. With Additions by Prof. J. Playfair McMurrich, Mr. H. A. Pilsbry, Dr. George Marx, Dr. P. R. Uhler, and Mr. C. H. Bollman.*

8vo.

Philadelphia, 1889.

Extremes point to each other. Professor Heilprin's scrupulous enumeration of those who have aided him in his work recalls, by contrast, the practice of a writer farther to the West. If the historian may justly be reproached with putting a small part for the whole, Professor Heilprin cuts up the whole into too many parts.

About half the present volume is devoted to the zoology of the Bermudas, and the conclusions arrived at are:

That the fauna is a wind-drift and current-drift fauna, the aquatic animals belonging to the West Indies, the birds and insects to North America, though some portion may have come from Eurafrica, while the terrestrial Mollusca and the arachnids and echinoderms may have been partly developed from a fauna existing on the spot before the present physical conditions were established. That the *currental* water which separates the United States from the Bermudas is a practically insuperable barrier to the direct passage of marine animals from one region to the other, and that an arm of the sea may stop marine animals as effectually as it would land animals.

These views accord with those of Mr. Wallace.

The physical history and geology of the Bermuda

group, as read by Professor Heilprin, show that elevation and subsidence both marked the region in its development and these conditions, he says, "are more in consonance with the Darwinian hypothesis than with any other."

In the chapter on the Coral-Reef Problem, Professor Heilprin takes a position of antagonism to Mr. Guppy and Prof. Alex. Agassiz, and maintains, after examining their objections to the Darwinian view, that the theory of subsidence accords best with the facts and may be said to be in substantial harmony with them. Mr. Agassiz asserts that the Florida reefs have not been assisted in their upward growth by elevation, but Mr. Heilprin declares that there is, in the regular horizontal limestone beds of the southern part of the peninsula, the most conclusive evidence of elevation, even as late as the Pliocene and Post-Pliocene periods, and that there is every reason to believe that this upward movement did not stop short of the Coral-forming tract. He thinks it probable that the Straits of Florida and some of the deep channels separating the West Indian islands were formed through subsidence. The case is still before the Court, and not many now living may hope to see it decided.

In the notes on the zoology of the Bermudas, Professor Heilprin says: "As might have been anticipated the greatest profusion of animal life was found on the edge of the growing reef itself, the shoals surrounding the cluster of rocks on the northern barrier known as the North Rock. The wealth of forms occurring here almost transcends belief. . . . All the dredgings were confined to depths within 16 fathoms, which also

represents the greatest sounding made by us in the lagoons."

The list of the marine and land forms fills about 100 pages, and many types are represented in the plates that illustrate the work ; but there is no index.

*The Ethnologic Affinities of the Ancient Etruscans.*  
*By Daniel G. Brinton, M. D.*

*Philadelphia, 1889.*

This contribution to the literature of the Etruscan puzzle was read before the American Philosophical Society in October last.

Dr. Brinton spent some time in the summer of 1889 among the Kabyles, and when, not long after, he came to study the portrait busts on the Etruscan tombs, he was struck with the resemblance between the two types. This incident led him to make a more extended examination and, as the result of this, he advocates the Libyan origin of the Etruscans. His arguments are :

1. Testimony and tradition assert that the Etruscans came into Italy across the sea, from the south.
2. Physically, they were tall and of blond type, with dolichocephalic heads, like the ancient Libyans and the modern Berbers and Guanches.
3. In the position assigned to woman and in the system of federal government the Etruscans and the Libyans were in accord.
4. The phonetics, grammatical plan, vocabulary, numerals and proper names of the Etruscans present analogies with the Libyan dialects, ancient and modern.

*Hints to Travellers, Scientific and General. Edited for the Council of the Royal Geographical Society, by Douglas W. Freshfield, Hon. Sec. R. G. S., and Captain W. J. L. Wharton, R. N., F. R. S., Hydrographer to the Admiralty. Sixth Edition, Revised and Enlarged.*

8vo.

London, 1889.

(from the Royal Geographical Society.)

It is said in the preface that this sixth edition of the well-known "Hints" is substantially a reprint of the fifth, with such corrections and additions as time and experience have suggested. Critics more competent and more pitiless could not well be found, but the little book has no reason to fear even them. It has won and will keep its place as the necessary companion of every one who would see the world to the increase of knowledge for himself, or for others; and the reading of it is profitable even for those few persons, every day diminishing in number, who are content to do all their travelling at home.

*Le Sénégal—La France dans l'Afrique Occidentale. Par le général Faidherbe, de l'Institut. Ouvrage contenant 18 gravures d'après les dessins de Riou, 3 gravures de Thiriat d'après des photographies, et 5 cartes ou plans.*

8vo.

Paris, 1889.

The introduction to this monumental book closes with the words: "The state of my health would not have allowed me to finish the work which I now lay before the public but for the help given by Captains Bizard and Brosselard and, especially by Captain Ancelle; and



for this help I now offer them my sincere acknowledgments."

The book had hardly made its appearance when death put an end to the author's long and most honorable career. Senegal, says General Faidherbe, is the oldest colony of France. It is, none the less, by the common consent of all who are acquainted with its history, the creation of General Faidherbe himself, since he first of all established it upon a firm foundation and gave it space and breadth and symmetry. Made governor of the colony in 1854, he applied himself to the study of the country and the tribes, their manners and their languages, and their relations with each other and with the French. He won the native chiefs, whenever it was possible to win them, by friendly overtures; but when, as with El-hadj Omar, a conflict was found to be inevitable, the governor accepted it without hesitation and forced it to a conclusion with equal ability and vigor. He planted military posts at every commanding point from the sea-coast to the head-waters of the Senegal, and the supremacy of the French in all that territory has never since been called in question. He provided for the future extension of the French influence to the eastward by planning an expedition beyond the watershed that separates the Senegal from the Niger; and the voyage of Lieutenant Caron on this latter river as far as Timbuktu is the realization of Faidherbe's large design.

There are, says General Faidherbe, three distinct zones in the western part of North Africa, the Tell, the Sahara, and the Soudan. The Tell is the region north of the Sahara, and a true European region, for it is not

the Mediterranean but the Sahara, which divides Europe from Africa. South of the Sahara, in Senegambia, is Africa, with its two seasons; the dry season, from November to July, when the heat is almost endurable, when it never rains, and the desert wind does not blow; and the rainy season, with its excessive heat and pernicious fevers and stifling calms, broken by torrents of rain and violent storms. Here the flowers are few and scentless; there is an infinite variety of birds, with most brilliant plumage, but generally songless; there are vast rivers, abounding with the hippopotamus and the sea-cow and the crocodile, and unbroken forests that shelter the elephant and the giraffe. This is the home of the black man, who has suffered so much at the hands of others more civilized than himself; a being naturally good, with an intelligence comparable to that of many of the whites, but deficient in character, that is to say, in force of will, of forethought and of perseverance, so that he will always be at the mercy of more highly-gifted races.

There are exceptions even to this rule, and General Faidherbe quotes, from a work printed at Amsterdam in 1789, a very dramatic story of a revolt planned by five hundred captives in Western Africa. The plan was reported to the whites by a child, 12 or 13 years old, and the commander of the garrison assembled the negroes in the fort and questioned the two leaders, who confessed their design and said that they and their companions had been moved to win their freedom, not out of hatred to the whites, but because they were all ashamed of not having died with arms in their hands instead of submitting to slavery. The chiefs were put

to death, and the others were sent to the West Indies. These Senegambians are often indomitable men, and one of them at St. Louis, not many years ago, having been recaptured after frequent escapes, refused to eat or drink for ten days because his hands had been bound, and he would not lick up his food, he said, like a dog. To save his life his hands were untied when his food was brought. Stories not unlike this are told of the Minas in Brazil and the Lucumis in Cuba ; and General Faidherbe finds an explanation of the submissive temper shown by most of the negro slaves in America in the fact that the resolute and high-spirited mostly fight to the death when the slave-hunters attack the villages, and that few of them are captured.

The finest race among the blacks of Senegambia is the Wolof, which takes readily to civilization.

The right bank of the Senegal is held by the Trarzas, the Braknas, the Douaish and others, known collectively as Moors, and held in detestation for their cruelty.

The products of Senegal are cotton, indigo, rubber, palm-oil, skins, timber, cattle, rice, honey and wax, sorghum, ground-nuts, gums and coffee, which is, according to General Faidherbe, the very best in the world, and the parent of the Mocha berry.

The successive advances of the French into the interior of the country are described briefly and yet with such detail that no significant fact in the history of Senegal, since the abolition of slavery in 1848, is neglected.

General Faidherbe's conclusion is that Senegal presents an almost infinite field of activity to French commerce, which must content itself with "colonies of this type since, so far from producing the necessary emi-

grating element, we have need of a million immigrants at home."

He gives a negative answer to the question whether the French are a colonizing people. Two-thirds of the Europeans in Algeria, he says, are Spaniards and Italians; and he has no illusions with regard to Canada as a typical French colony.

His language deserves to be studied. "We were once able to colonize," he declares, "and we are so no longer, and the causes of this degeneracy are not far to seek. It is true that Canada has been peopled by a Franco-Norman race, but it has prospered and the colony availed itself of its boundless natural resources because it was violently separated from the mother-country a hundred and twenty-six years ago. Among the people of the same race as the Canadians, that is to say, among the inhabitants of the Departments of Seine-Inférieure, of Eure, of Calvados, of La Manche, and of Orne, the birth-rate is to day the lowest in all France. While it is in Canada a matter of pride to have a very numerous family, in our Norman province the birth-rate is now inferior to the rate of mortality. This is the result of selfishness or of immorality. It is probable that if Canada had remained a French colony to the present day, the influence of our manners would have made itself felt there by the constant personal intercourse, by the action of literature and art and the drama, and the Canadians would no longer be regarded as an eminently prolific race."

The maps show the Western Sudan, Saint Louis in 1854, Saint-Louis in 1885, and Dakar in 1850 and in 1888.

*Russian Explorations, 1725-1743. Vitus Bering: the Discoverer of Bering Strait. By Peter Lauridsen. Revised by the Author, and Translated from the Danish by Julius E. Olson. With an Introduction to the American Edition by Frederick Schwatka.*

*Chicago, 1889.*

Mr. Lauridsen's book is rather a defence than a biography of Bering. The Danish navigator, who is called a German in the last edition of the Encyclopædia Britannica, has not always met with justice at the hands of men. He was harshly dealt with by the Russian Senate and the Admiralty; and Captain Cook was the first to recognize his worth. Cook's judgment has been approved by many distinguished seamen of the last hundred years, but others, and foremost among them Baron Nordenskiöld, have roused Mr. Lauridsen's wrath by their treatment of Bering. The tone of controversy pervades the present book to an unpleasing degree, and the generous heat of the author, or the translator, carries him beyond bounds. Mr. W. H. Dall is one of Bering's supposed enemies, and the heading of Chapter XVII. mentions him in these words: "Dall, the American writer, reprimanded." What is the relation between the two writers that gives to Mr. Lauridsen the authority to *reprimand* Mr. Dall?

Mr. Lauridsen would have done better work if he had approached his subject in a calmer frame of mind; and there was the greater inducement to do this that Fortune has not, on the whole, been cruel to Bering. The sea and the strait that he discovered bear his name, and the glory of planning the great Northern Expedition—extravagantly called by his biographer "the greatest

geographical enterprise that the world has hitherto known"—belongs to him. These are titles to fame, if fame has any value, and the man who has won them is beyond the need of defence.

The folding maps in the volume present: Bering's Chart of his First Voyage, Berch's Chart of 1728, Müller's Map of Bering Peninsula, 1758, Kaiak Island, Spangberg's Chart of the Kuriles and North Japan, 1738-39, Bering's and Chirikof's Expeditions to America, 1741, and Fr. Lütke's Map of Bering Island, 1827.

*Le Congo Français du Gabon à Brazzaville. Par Léon Guiral, ancien attaché à la Mission Scientifique de l'Ogooué et du Congo. Préface par M. J. Künckel d'Herculais. Ouvrage orné de gravures et d'une carte.*

*Paris, 1889.*

Léon Guiral died of the African fever at the end of the year 1885.

He was twenty-seven years old and had already done good work, both as a naturalist and as an explorer, in the Congo region. The present volume is made up of his notes, published almost as he left them, and they testify to very uncommon qualities in the writer. The chapter on the Batékés, who live on the water-shed between the Ogowe and the Congo, seemed to Dr. Hamy so remarkable that he asked permission to print it in the *Revue d'Ethnographie*.

Another tribe, or nation of Batékés, inhabits the two sides of Stanley Pool, known to the natives as Nkuna, but there is nothing, except the name, common to these and to the Batékés of the Ogowe.

At Stanley Pool M. Guiral was received with the

greatest cordiality as the "son of the Commandant" (de Brazza). This was on the right bank of the Pool, where there were no European establishments, and the natives had the feeling that they were neglected by the white men, of whom they knew only de Brazza and Guiral, and Stanley. M. Guiral told the chiefs that the French were coming to settle in the country. "Let them come," was the answer; "this land belongs to the Commandant. He is the only one who is on our side. Bolimuntari (Stanley) killed some of our people. If he comes here he will find the villages deserted." The Batékés on the left bank of the Pool cherished a grudge against Stanley for the severe vengeance he had taken upon them; but M. Guiral remarked that all the Batéké chiefs did not share this sentiment. This was one of the frequent indications of the European rivalries on the Congo, and their effect on the natives.

It was only a short time after his talk with the chiefs that M. Guiral met Stanley, at Ngubela, on the left bank of the Congo. There was a great crowd round the explorer's hut. Guiral entered. Stanley rose, shook hands with his visitor and gave him a seat. There were some whites and a number of native chiefs in the hut.

One of these, Ngubela, made himself at home and even pushed his stool in between Stanley and Guiral. The conversation was in French, which Stanley spoke "well enough to be understood." Two of Ngubela's children ran in and out, fanning their father from time to time with journals which had been given to them, and the chief occasionally requited this service with a mouthful of beer, contributed in an unconventional way from the draught he had just taken.

Stanley spoke of de Brazza with a good deal of bitterness, and Guiral, to avoid committing himself on a subject so delicate, feigned ignorance of the incidents mentioned. He adds: "I saw well enough that Stanley had heard of my coming, and had brought together the crowd of various tribes and the chiefs to impress me with the evidences of his power in the country."

Invited to a second interview, Guiral maintained the same reserve, though Stanley plied him with questions. They met a third time, and that evening Stanley was extremely gay, full of talk and very cordial in manner.

"Stanley's hut," says Guiral, "was like an arsenal. There was a gun under his pillow, and above his bed hung rifles, a Martini, a Snyder, and two Winchesters, besides a shot-gun.

"He is continually on his guard. He lives alone in a hut that stands by itself, and he eats alone. He keeps an impassable distance between himself and his people. He is a veritable military leader, with his lieutenants and his soldiers, and his stated hours for reports, after which he must not be disturbed except for some grave matter. He is severe, and the blacks tremble in his presence. I do not know whether he commands the attachment of those about him. I speak principally of the Europeans; but it is certain that he exercises a great influence over all the members of the expedition, from the Belgian officer to the last Kruman. All have the most absolute confidence in him."

These interviews took place in 1882, and M. Guiral gives the following picture of Stanley: "He is of middle height, narrow-shouldered, and with a rather thick neck. His almost white hair contrasts with a close-cut,



irreproachably black moustache. He has large and prominent eyes and a keen glance, which becomes fixed when he questions the person with whom he talks. At the least excitement his generally pale face flushes."

*A Concise Dictionary of the Principal Roads, Chief Towns and Villages of Japan, with Populations; Post-Offices, etc.: Together with Lists of Ken, Kuni, Kôri, and Railways. . Compiled from Official Documents by W. N. Whitney, M. D. Interpreter of the U. S. Legation, Tôkyô. Tôkyô, Yokohama, Shanghai, Hongkong and Singapore.*

8vo.

London, 1889.

(from the Author.)

This little volume, which contains in all but 400 pages, is nothing less than an epitome of the Japanese Empire.

The preface clears up many doubtful points. Since the time of the Restoration (1868) the government has been an absolute monarchy, conducted by a Cabinet appointed by the Emperor. Certain modifications prepared the way for the new constitution, promulgated February 11th, 1889, to take effect January 1st, 1890.

The Government will then consist of the Emperor, the Cabinet and the Diet, this comprising the House of Peers and the House of Representatives. The first Session will be held in 1890.

The main divisions of the Empire are forty-six in number, *viz.*: Three imperial cities (Tôkyô, Kyôto, and Ozaka), forty-two prefectures, and one territory (Yesso and neighboring islands).

The *Ken* are prefectures, the *Kuni* provinces (no longer politically recognized), and the *Kôri* counties.

There are tables of Japanese weights, measures, and money, a sketch of the Japanese syllabary and orthography, and an appendix, containing the constitution of the Empire, the law for the organization of cities, towns and villages, and statistical information respecting territory, population, commerce, industry, justice, army and navy, religion, and other subjects.

If a constitution could decide such matters, some things in Japan would be beyond the reach of change. The Emperor, at least, possesses all reasonable security against the fate of Dom Pedro II. in the declaration made in Chapter I, Article 1: "The Empire of Japan shall be reigned over and governed by a line of Emperors unbroken for ages eternal."

The area of the Empire is 24,794.36 square *ri*, each of 5.9552 square miles. The proportion of cultivated land is, in Nippon, 59.25 per cent., in Shikoku 4.76, in Kyūshū 11.41, and in Hokkaidō 24.58 per cent.

The population numbered on the 31st Dec., 1887, 36,069,007, almost equally divided between the sexes.

There were in 1886 6,611,461 children (3,472,787 boys and 3,138,674 girls) of age to attend school. Of these, 3,063,186 (2,152,767 boys and 910,419 girls) were actually in attendance, and 3,548,275 (1,320,020 boys and 2,228,255 girls) did not attend school.

#### TITLES OF PAPERS IN GEOGRAPHICAL JOURNALS.

AMSTERDAM—*Kon. Nederlandisch Aardrijkskundig Genootschap, Tijdschrift.*

Places of more than 10,000 Inhabitants in the Netherlands on the 1st January, 1889, with the Absolute and the Relative Increase during the

year 1888—Communications relating to the Scientific Exploration of Flores and the Ki Islands—Some Particulars Concerning the Mongols, from Przjevalsky's Fourth Journey in Central Asia—The most Important Travels of Netherlanders in the Nineteenth Century and their Chief Geographical Works for the same Period—On the Indian Question in the United States—The Paris Geographical Congress, 1889—The West Coast of Atjeh—Engano (west of Sumatra), its History, Inhabitants and Products—A Word on the Map of Samarang—The Plans for Draining the Zuyder Zee—Voyage of the Austrian Corvette *Zrinyi* in the West Indies; with a Supplement—Amendments and Additions to the "Journeys and Explorations in North America"—Some Observations on Mammalia, made by R. Schuiling in "Wallace's Boundary Line a Continental Limit"—Development of our Acquaintance with the Pamír Region.

BERLIN.—*Gesellschaft für Erdkunde, Verhandlungen.*

Schweinfurth's Travels in Arabia Felix—Captain Kund in the Southern Kamerun—Dr. Walther's Report on the Results of a Voyage to the East Indies in the Winter of 1888–89—Dr. Philippon's Peloponnesian Journey in the Spring and Summer of 1889—Dr. Warburg's Travels in Formosa—Dr. Hettner's Fourth Report on his Travels in Peru and Bolivia.

*Zeitschrift.*

The Determination of Geographical Position by the

so-called Method of Statical Lines—On Projections of the Map of Africa—The First Journey of a European to Damaraland—The Wanyamwezi—Dr. Nansen's Official Report to Counsellor Gamél, in Copenhagen.

*Deutsche Kolonialzeitung.*

The Congo State and the Arabs—The German Emin Pasha Expedition—The Question of Malaria from the Point of View of Tropical Hygiene—What is to Become of the Freed Slaves?—The Somali—The Situation in East Africa—Transactions of the Section for Medical Geography, Climatology and Tropical Hygiene at the Sixty-second Congress of German Scientists and Physicians—The Three-Americas Congress—The German Commercial and Plantation Society in the South Sea—A New Protectorate in East Africa—The Colonial Situation—From German Vituland.

BRUSSELS.—*Société Royale Belge de Géographie, Bulletin.*

The Topographical Evolution of a Great City—Recent Discoveries in Egypt (Jules Leclercq)—Narrative of the Attempt at Flemish Colonization in Mexico—The Samoan Islands—The Lower Congo—Tierra del Fuego and the Falkland Islands—The International Geographical Congress in Paris, 1889—An Excursion in Campine—Léopoldville—The Province of São Paulo, Brazil—The Universal Hour and the Initial Meridian.

*Le Mouvement Géographique.*

The Italian Protectorate in Abyssinia and at Shoa

—News of Stanley—Tekna (North-Western Sahara)—Stanley and Emin—Commercial Progress on the Congo—A New English Colony: Zambesi—The Portuguese and the English in Nyassaland—The Congo Railway—The Lower Congo—Missions on the Congo—The Conquest and the Loss of the Egyptian Soudan—Stanley and the Relief of Emin Pasha.

BUENOS AIRES.—*Instituto Geográfico Argentino, Boletín.*

The Naturalist in Brazil—Customs of the Matagayo Indians—The Chaco and its Rivers—American Linguistic Studies.

*Sociedad Geográfica Argentina, Revista.*

Communications to the International Geographical Congress—The Territory of Formosa (between the Paraguay, the Pilcomayo and the Rio Bermejo)—In the Chaco—The Territory of the Chaco Austral.

EDINBURGH.—*The Scottish Geographical Magazine.*

Narrative of an Exploring Expedition to the Eastern Part of New Guinea.—The Present and Future of Queensland (Carl Lumholtz)—The Physical Conditions of Barents Sea—On the Achievements of Scotsmen during the Nineteenth Century in the Fields of Geographical Exploration and Research—The Cocos-Keeling Islands—On the Temperature of the Tidal Estuaries of the South-East of England—Report to Council on the British Association Meeting at Newcastle, 1889.

FLORENCE.—*Sezione Fiorentina della Società Africana d'Italia, Bullettino.*

The Western Somali—Opia and the Italian Protectorate on the Somali Coast—A Reconnoissance up to Asmara—Italy in Eastern Africa.

GENEVA.—*L'Afrique Explorée et Civilisée.*

General Survey of African Events—Chronicle of Slavery and Reports of the Missions—Tanganyika—Letter from the Zambesi.

GOTHA.—*Petermanns Mittheilungen.*

The Adai-Choch in the Central Caucasus—The "Rigi" in the Cascade Mountains—Ice-Caves—Kangaroo Island—The Hydrographic Characteristics of the Rudolf Lake Region—Orotava Valley in Teneriffe—The Latest Earthquake in Greece—British North Borneo—The Map of Usambara—Bokhara at the Beginning of a New Epoch—Journey in Southern Iceland—Surveys and Cartography in Netherlands-India.

LONDON.—*Royal Geographical Society, Proceedings.*

Lake Tanganyika—The Bijouga or Bissagos Islands, West Africa—The Geographical Congress in Paris—Geographical Co-ordinates in the Valley of the Upper Nile—Wind-Action in Egypt—An Expedition across Australia from South to North, between the Telegraph Line and the Queensland Boundary, in 1885–86—Explorations and Ascents in the Caucasus in 1889.

MADRID.—*Sociedad Geográfica de Madrid, Boletín.*

Roman Roads between Toledo and Mérida (by

Don Francisco Coello)—Authentic Notices of the Famous River Marañon and the Apostolic Mission of the Society of Jesus, of Quito, in the Vast Forests of that River. Written in 1738 by a Missionary of the Society, and now Published for the first time by Marcos Jiménez de la Espada — Brief list of the Maps and Plans in the Private Library of the King (Cesáreo Fernandez Duro)—Edrisi's Geography of Spain (Don Eduardo Saavedra).

*Sociedad Española de Geografía Comercial, Revista.*

The English at Puerto Cansado (on the Atlantic Coast of the Sahara)—Spanish Missions in Africa—The Anti-Slavery Congress—New Markets for Spanish Industries—The Samoan Group—The Rif Question—The Geographical Congress in Paris—Colonization of Mindanao—The Pennsylvania State Fair in 1888.

MANCHESTER—*Manchester Geographical Society, The Journal of the.*

Peking and the Pekingese—Fernando Po, West Africa—The Sea and Shores of Azov—Notes of Travel from Shanghai to St. Petersburg—Correspondence : An Island in Lake Nyassa, From Newcastle to Yenesei, the East African Question, the Slave Trade in Central Africa.

MILAN—*L'Esplorazione Commerciale.*

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